

**ecology and environment, inc.**

223 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60606, TEL. 312-663-9415

International Specialists in the Environmental Sciences

EPA Region 5 Records Ctr.



357443

DATE: June 1, 1981  
To: File  
FROM: Thomas Lentzen T.L.  
SUBJECT: Illinois Eckhardt Sites / TDD# F5-8103-6

## SECTION I - INTRODUCTION

At the request of the United States Environmental Protection Agency (USEPA) Region V, Chicago, five sites identified from the Eckhardt Report and researched under TDD# F5-8005-3 were resubmitted to FIT to determine if the recommendations made for these sites were accomplished and to perform any follow-up work which would be necessary to complete the recommendations made.

Performed pursuant to TDD# F5-8103-6 background data, which included reviewing existing preliminary assessment forms, contacting company officials and contacting Illinois Environmental Protection Agency (IEPA) personnel was completed.

The five sites identified are listed as follows:

- 1) Borden Chemical (Smith-Douglass Co.)
- 2) IMC Chemical
- 3) North Shore Materials
- 4) Reichold Chemical
- 5) Trekker Chemical Co.

## SECTION II - BORDEN CHEMICAL (Smith-Douglass Co.) E&E# IL-84

### A) GENERAL SITE DESCRIPTION / OWNERSHIP

Located in Livingston County near Streator, Illinois, Smith-Douglass (Division of Borden Chemical) is situated on the flood plain of the Vermillion River. Though seven feet above the highest recorded levels of flooding, flooding has not been a problem at the plant. Phillip's Creek, a tributary of the Vermillion encircles the plant's settling ponds and lagoons and discharges into the Vermillion approximately 700 feet west from pond number 1. Presently Smith-Douglass owns and operates the land in which the company is operating on.

### B) BACKGROUND INFORMATION

The Smith-Douglass plant has been manufacturing chemicals for agricultural use since the early 1950's. Phosphoric acid, anhydrous, sulfuric acid, mixed fertilizer (potassium chloride, ammonia, anhydrous and phosphoric acid) and superphosphate (trisodium phosphate) have been the major products produced here.

Reports indicate that since 1953, if not before, the Smith-Douglass Company had been discharging highly acidic liquid wastes into Phillip's Creek. In November 1956 approximately 20,000 fish were killed in the Vermillion River. This kill was caused by the Smith-Douglass plant discharging their effluent directly into Phillip's Creek, which eventually empties into the Vermillion. This kill was also caused by the leakage of one of their lagoons containing industrial wastes, leaving both the Vermillion River and Phillip's Creek a bright green color. The company was ordered by the State Health Department to cease this discharge on December 5, 1956 and on February 26, 1959 was fined \$2,000.00 and \$13,200.00 respectively, in which \$2,625.00 was paid and 2,500 large mouth bass fingerlings, 5,000 large mouth bass and 10,000 crappies were replaced. These terms were acceptable to both sides.

### Background Information.(continued)

Though operations did improve after this incident, which in part was due to a continuous yet irregular monitoring of the plant by the State Health Department, discharge from the plant and seepage from their lagoon(s) continued to occur. It was not until the 1970's when stricter regulations were imposed on the plant by the Illinois Environmental Protection Agency (IEPA). Operating permits were required and obtained by the site. A National Pollutant Discharge Elimination System (NPDES) and a State of Illinois Operating Permit (OP) were acquired during 1975.

During the latter part of the site's history, a system of five ponds was employed to treat process wastes, cooling water and runoff from the plant grounds. Cooling water, sanitary wastes, and zeolite regeneration wastes from the plant are channeled to the freshwater pond (aerated lagoon). Flow is recycled from this pond back to the plant for reuse. Water from Phillip's Creek is used as make-up water and treatment of this water is done by two surface aerators. Trouble has occurred with this pond when excessive water, entering the pond during wet weather from Phillip's Creek had necessitated discharges back into the creek. The pH of the pond contents was the main concern. Process wastes from the phosphoric acid plant have been discharged to the gypsum pond. The gypsum by-product from the production of the phosphoric acid has been continually dredged and utilized in the construction of berms around the pond.

Two other ponds are located north of Phillip's Creek and south of Phillip's Creek. The north pond, "Green" pond retains runoff from the north end of the plant plus liquid waste from the mixed fertilizer dyeing operation. This pond has continually been a problem to the plant due to seepage from the pond into the creek and imparting and staining the water and ground green. The south pond, "Coal" pond collects seepage that has been diverted by ditches.

The remaining pond is located south of the phosphoric acid plant and is known as the "KSF" pond. This pond is utilized as a cooling basin for water which is recycled to evaporators in the phosphoric acid plant.

### C) FINDINGS

Through conversations held with Mr. Ken Baumann and Mr. Joe Koronkowski from the IEPA, it was learned that the Smith-Douglass plant no longer manufactures phosphoric acid, anhydrous, nor the superphosphate. Since phosphoric acid is no longer produced, the plant no longer has the gypsum by-product. Also, the "KSF" pond (recycling pond) has been filled in when the company changed to a dry system using vacuum bags. It was also learned from Mr. Baumann that the aerated lagoon had been replaced by a closed system cooling tower. The only material that now empties into the lagoon is runoff from the gypsum area and domestic waste from the change houses after this material has gone through a septic tank. The control gates from this lagoon had been sealed off to prevent seepage into Phillip's Creek when the cooling tower was installed. Smith-Douglass had also installed a new treatment plant to be used when the aerated lagoon is about to overflow.

According to Mr. Baumann samples of the creek as well as the ponds and lagoons were taken on October 9, 1980. Specifically, the samples from the creek showed varying concentrations of ammonia, nitrate - nitrite, phosphorus, chloride, fluoride, sulfate, iron and manganese. Of main concern to Mr. Baumann were the water quality violations of ammonia, fluoride and possibly of iron. Mr. Baumann attributed the violations to seepage he believed specifically coming from the aerated lagoon. Also, during the inspection that IEPA made, seepage was noticed coming from the green pond and entering into the creek. Mr. Baumann also stated that IEPA Land Pollution personnel were at the site taking soil samples. Presently no analysis had been submitted.

### D) RECOMMENDATIONS

Though water quality violations are present and seepage from the ponds and lagoons has continually occurred, it is believed that the IEPA should be able to correct this situation in the near future without assistance. The change in the operational procedures at Smith-Douglass, i.e., closed system cooling tower, treatment plant, and a dry system using vacuum bags should also be beneficial in correcting any problem. Mr. Baumann also stated that follow-up work will continue at this site.

Recommendations (continued)

From this information, an on-site inspection could not be justified and future work does not seem warranted.

### SECTION III - IMC CHEMICAL E&E# IL-12

#### A) GENERAL SITE DESCRIPTION / OWNERSHIP

IMC Chemical - Trojan Division is located in Williamson County, Crab Orchard National Refuge, near Marion, Illinois. Though the site is no longer in operation, processed finished explosive material, manufactured at IMC's Wolf Lake plant is transported to the site and stored in earthen covered igloos. Raw material, to be used at their Wolf Lake plant is also stored here.

Presently, IMC Chemical leases this land from the United States Department of Interior, Fish and Wildlife Service.

#### B) BACKGROUND INFORMATION

During the 1940's and possibly earlier, the United States Government was using this location to manufacture explosives and explosive material to be used during World War II. At the conclusion of the war, the government leased this property to the Olin Corporation. Olin, after acquiring this lease built a new modern explosive facility consisting of 24 buildings which included underground igloos, metal quonset hut structures, and 8 powder ponds for the manufacturing of the following explosives: nitroglycerin dynamite (DYN), nitroglycerin (NG), nitrocellulose (NC), pentaerythritol tetranitrate (PETN), cyclonite (RDX), trinitrotoluene (TNT), lead azide, lead styphnate, and mixtures of the aforementioned such as Torpex, HBX, and FNH. In the early 1960's Commercial Solvent Corporation (CSC) bought out the facility in which Olin was operating on. CSC continued to operate this facility but at an unprofitable return. Towards the end of the 1960's and the early 1970's, CSC shut down their operation. Because of the nature of the material on-site and the possibility of a fire and explosion hazard, CSC filed with the Pollution Control Board (PCB) a petition for variance to open burn explosive waste at their facility. On June 14, 1971 a Variance, #71-57, was granted until October 14, 1971 to open burn this material.

## IMC CHEMICAL

### Background Information (continued)

In 1975, IMC Chemical Group - Trojan Division purchased the CSC facility and thus inherited any problems associated with the site. Though the buildings had not been used since 1971, prior use had seriously contaminated these buildings and four of the eight powder ponds thus creating a serious fire and explosion hazard. IMC had tried to desensitize the contaminated areas but found it impossible to remove all explosives from cracks in the concrete or from absorption into the wood. Thus, IMC in 1976 filed with the Pollution Control Board, a Petition for Variance from Rule 505 of the Chapter 2: Air Pollution Control Regulations to burn 24 buildings and four powder ponds. On January 6, 1977 the Board granted IMC a six month variance, PCB# 76-259 to perform this decontamination procedure. Due to unsuitable weather conditions only seventeen (17) of the twenty-four (24) building were decontaminated. Because of this, on September 9, 1977 IMC filed once again a Petition for Variance from Rule 505. On March 2, 1978 the Board granted IMC a variance, PCB# 77-229 for a period of six (6) months, with respect to decontamination burning of the buildings and one (1) year with respect to the burning or flashing of obsolete explosives.

Since the purchase of the facility in 1975 from CSC, IMC had not manufactured any explosives or explosive materials at this location. From approximately 1977 to 1979, IMC on an irregular basis had been grinding FNH (primarily nitrocellulose) into a slurry to be utilized as the major component in the production of a water based gelatin explosive. This process was discontinued because of adverse weather conditions and because this material was found to be unstable, capable of spontaneous combustion. The amount of FNH present on-site was estimated to be 3.5 million pounds. This figure was based on past records from the previous owner and records from the amount of material shipped from their Wolf Lake plant. Because this material was found unstable a petition was filed for variance from Rule 505 in 1979. The Board in 1979 granted IMC a variance to flash the remaining four (4) ponds and the unstable FNH material.

## IMC CHEMICAL

### C) FINDINGS

Based on information from Mr. John Justice of the Illinois Environmental Protection Agency (IEPA) all contaminated areas and all of the unstable FNH material to date, has been decontaminated by open burning or flashing. The powder ponds that once contained the FNH material have been covered and reseeded. Currently IMC uses this area only for the storage of processed material and the storage of their raw materials. All processed and unprocessed material is kept in earthen covered igloos. Mr. Peter Gerathy from IMC also confirmed the above statements made and added that IMC wishes to return the land back to its original habitat in the near future.

### D) RECOMMENDATIONS

In light of the information obtained through conversations with Mr. John Justice from the IEPA, Mr. Charles Kovach from IMC, and Mr. Peter Gerathy also from IMC an on-site inspection did not seem justified and further investigation does not seem warranted. Since all contaminated areas were burned or flashed, diminishing the possibility of fire and explosion and because nitrocellulose (FNH), which was the material of main concern is insoluble in water, no further actions are recommended.

#### SECTION IV - NORTH SHORE MATERIALS E&E# 11-14

##### A) GENERAL SITE DESCRIPTION / OWNERSHIP

North Shore Materials located in North Chicago, Illinois, is a division of Electrical Conductors, Inc. (ECI). Situated on approximately two (2) acres of land, North Shore Materials manufactures both bulk and finished products of electrical wire and cabling. Presently ECI is the owner of the land in which the company operates on.

##### B) BACKGROUND INFORMATION

In June of 1973 the company went into operation as an electrical wire and cable manufacturer. Using polyvinyl chloride (PVC) resin in the polymer form, purchased from B.F. Goodrich along with plasticizers and stabilizers, this material is run through an extrusion process (raising temperature) to form PVC pellets. These pellets are used in turn to coat the wire and cable. The material is manufactured for the most part in bulk quantities, though some finished products are made at the site. The end products, after the coating operation are used for extension cords and battery extension cables.

##### C) FINDINGS

Identified under the Eckhardt Report, the Illinois Environmental Protection Agency (IEPA) had no information on this site. In speaking with Mr. Alan Coleman, President of ECI and Mr. Peter Leeb, President of North Shore Materials, it was learned that approximately eight (8) years ago B.F. Goodrich approached North Shore Materials to see if it was possible to treat and recycle their PVC waste resin. North Shore Materials accepted several loads of this material (Mr. Coleman could not remember the exact amount) but found it was uneconomical for them to treat and

## NORTH SHORE MATERIALS

### Findings (continued)

recycle this waste. According to Mr. Coleman, this was the only time any material of this nature was accepted for treatment and recycling.

Plastic Refinery was the name of the company (division of North Shore Materials) that was formed to do this work and it became non-operational approximately six (6) year ago. The name though has been kept alive.

Presently North Shore Materials uses approximately 150,000 lbs. of PVC resin per month purchased from B.F Goodrich in a polymer-powder form. Degreasing of their wire is not necessary since the wire comes in clean. Thus, solvents that normally would be needed to clean this wire are not present on-site. Also, since the wire is not drawn down (passed through a die), little, if any, scrap metal is produced. The end products are generally in bulk quantities and shipped out in this manner. Minor amounts of the end products are cut on-site into the finished product. Thus, any waste produced from this cutting, and also from material not meeting certain specifications, which according to Mr. Coleman is approximately 25,000 lbs. of insulated copper wire per month, is collected on-site and sold to scrap dealers.

### D) RECOMMENDATIONS

Since PVC is not considered hazardous and since North Shore Materials does not treat and recycle PVC waste resin, an on-site inspection and follow-up actions do not seem warranted. Possible work could be directed towards these scrap dealers picking up this waste and any waste from other companies similiar in nature. PVC when burned produces phosgene gas, an extremely toxic substance. It would be interesting to note how these scrap dealers discard the PVC since it is believed that their main interest would be to just recover the scrap metal.

## NORTH SHORE MATERIALS

### Recommendations

The scrap dealers picking up this waste from North Shore Materials are:

- 1) Safran Metal Co.  
1685 N. Elson Ave.  
Chicago, IL
- 2) Tri-State Metals  
1759 W. Fulton  
Chicago, IL

It should be noted that according to Mr. Coleman an incinerator is present on-site. Mr. Coleman has stated that the incinerator is used only for the burning of cardboard boxes and nothing else. This information should be forwarded to the IEPA to decide if actions need to be taken. As long as North Shore Materials burns nothing but cardboard boxes and not their waste it is felt that actions by the USEPA should not be taken.

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## SECTION V - REICHOLD CHEMICAL E&E# IL-17

### A) GENERAL SITE DESCRIPTION / OWNERSHIP

Reichold Chemical is located in Grundy County near Morris, Illinois. Situated on the flood plain of the Illinois River, at an elevation of approximately 520 feet, flooding of the site has not been a problem to the company. Maximum high water elevation of the river has been recorded to be 505 feet.

Surrounded by prairie land and marshland, Reichold Chemical encompasses approximately 128 acres while manufacturing synthetic resins for industrial use. These synthetic resins include cyclized rubber, polyester resins, maleic anhydride, and polyvinyl acetate emulsions.

The site owned and operated by Reichold Chemical was purchased in 1967 from the E-J and E Railroad and began production in 1971.

### B) BACKGROUND INFORMATION

The production of Reichold's synthetic resins for industrial use includes the following basic raw materials; benzene, vinyl monomers, styrene, glycols, dibasic acids, natural rubber, phenol, and various plasticizers and surfactants. Though approximately nine different wastes are produced, only two are classified as hazardous. These hazardous wastes are listed as follows:

- 1) Waste acid sludge  
60,000 gallons annually
- 2) Semi-jelled polyester  
16,000 gallons annually

## REICHOLD CHEMICAL (continued)

Having filed under RCRA as a generator and storer, these hazardous wastes, according to Mr. James Basil, Plant Manager, are kept no longer than 30 days and are currently hauled away by a licensed transporter and disposed of at a state approved landfill. Two other wastes produced by the plant, their lime slurry waste and their biological sludge, have in the past been disposed of on-site. The biological sludge has been landfarmed by the company while the lime slurry waste has been disposed of into trenches on their property. These disposal practices, since the beginning of this year (1981) have been discontinued according to Mr. Brad Benning from the Illinois Environmental Protection Agency (IEPA).

Presently permitted by the state, the site also has an NPDES permit. Processed wastewater, blow down from their cooling towers and boilers, as well as water softeners are treated by the plant's wastewater treatment system and discharged to the Illinois River. Occasional water pollution excursions have occurred in the past, specifically for iron, according to Mr. Eric Cohen from the IEPA. The plant is required to monitor for oil and grease, phenols, chromium and zinc.

### C) FINDINGS

Through conversations with Mr. Eric Cohen and Mr. Brad Benning from the IEPA, it was learned that an inspection of the Reichold plant with subsequent sampling had taken place during August of 1980. Pursuant to the Eckhardt Report follow-up, samples were taken from the lime slurry waste disposed of on-site into trenches and of the biological sludge that had been landfarmed. These samples were tested specifically for heavy metal content. Analysis of the samples were received by the IEPA during April of 1981 and showed that the level of metals within the samples posed no substantial threat to the environment. An ISS inspection was also performed by the IEPA during May of 1981.

REICHOLD CHEMICAL (continued)

D) RECOMMENDATIONS

Based upon the information obtained from Mr. James Basil of Reichold Chemical, Mr. Eric Cohen and Mr. Brad Benning from IEPA, and from the conclusions drawn by the IEPA from the samples taken at Reichold, an on-site inspection with subsequent sampling and testing for heavy metal content could not be justified. Further investigation of this site does not seem warranted since IEPA seems to have matters under control.

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